

Appln No. 10/004,246

Amdt date February 4, 2005

Reply to Office action of November 17, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-13. (Cancelled)

14. (Currently Amended) A method of controlling a reconfigurable processor, comprising:

executing a first instruction that loads a configuration into a configuration register;

~~executing~~ decoding a second instruction that references the configuration register; and

executing the configuration in the configuration register referenced by the second instruction, and the second instruction in parallel.

15. (Original) The method of claim 14, wherein executing the first instruction loads a plurality of configurations into respective configuration registers, wherein one of the plurality of configurations is loaded into a configuration register.

16. (Currently Amended) ~~The A method of claim 15~~ controlling a reconfigurable processor, comprising:

executing a first instruction that loads a configuration into a configuration register;

executing a second instruction that references the configuration register; and

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executing the configuration in the configuration register
referenced by the second instruction, wherein executing the
first instruction loads a plurality of configurations into
respective configuration registers, wherein one of the plurality
of configurations is loaded into a configuration register, and
wherein the configuration and the first instruction are stored
in a memory, and wherein the first instruction includes a
displacement field indicating a location in the memory of the
configuration relative to the first instruction.

17. (Original) The method of claim 14, wherein an
application program issues the first instruction.

18. (Original) The method of claim 14, wherein a compiler
generates the first instruction.

19. (Original) The method of claim 14, wherein executing
the second instruction and the configuration further comprises
retrieving operands requested by the second instruction and the
configuration.

20. (Original) The method of claim 19, wherein the second
instruction provides the operands to the configuration.

21. (Original) The method of claim 19, wherein a register
provides the operands to the configuration.

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22. (Original) The method of claim 19, wherein the second instruction includes an immediate value field, the second instruction being executed with values stored in the immediate value field.

23. (Original) The method of claim 19, wherein the second instruction includes an immediate value field, the configuration being executed with values stored in the immediate value field.

24. (Original) The method of claim 14, further comprising: decoding controls from the second instruction and the configuration; and

processing data according to the decoded controls with one or more execution units in parallel.

25. (Original) The method of claim 24, further comprising generating one or more results with the one or more execution units.

26. (Original) The method of claim 25, further comprising writing the one or more results to a register.

27. (Original) The method of claim 25, further comprising storing the one or more results to a memory.

28. (Original) The method of claim 25, further comprising providing the one or more results to respective execution units.

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29. (Original) The method of claim 14, further comprising pre-loading a second configuration register with a configuration while the configuration previously loaded in the first configuration register executes.

30. (Original) The method of claim 14, further comprising stalling the second instruction while the referenced configuration register is being loaded with a configuration.

31. (Original) The method of claim 14, wherein the first instruction, the second instruction, and the configuration are executed as part of an application program.

32. (Original) The method of claim 14, wherein executing the second instruction and the configuration includes performing an operation on scalar data.

33. (Original) The method of claim 14, wherein executing the second instruction and the configuration includes performing an operation on vector data.

34. (Original) The method of claim 14, wherein executing the second instruction and the configuration includes performing an operation on scalar data and performing an operation on vector data.

35. (Canceled)

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36. (Currently Amended) A processing system, comprising:
means for executing a first instruction that loads a
configuration into a configuration register; and

means for ~~executing~~ decoding a second instruction and the
configuration, the second instruction referencing the
configuration register containing the configuration

means for executing the second instruction and the
configuration in parallel.

37-83. (Canceled)

84. (Original) A method of implementing a vector processing
system, comprising:

executing a first instruction that loads a configuration
into a configuration register;

executing a second instruction and a configuration stored
in a configuration register referenced by the second
instruction;

processing elements of a first vector according to the
second instruction and the configuration, wherein

a vector register stores elements of the first vector,
and

a vector address unit provides an address to the
vector register which stores the first vector elements selected
by the second instruction and the configuration.

85. (Original) The method of claim 84, wherein processing
elements of the first vector further comprises writing data to

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the identified address through a write port of the vector register file.

86. (Original) The method of claim 84, wherein processing elements of the first vector further comprises reading data from the identified address through a read port of the vector register file.

87. (Original) The method of claim 84, wherein processing elements of the first vector further comprises:

initializing a current address of the first vector with a start address;

processing a first element of the first vector referenced by the current address with the instruction and configuration.

88. (Original) The method of claim 87, further comprising:
incrementing the current address with an address stride, wherein the incremented current address represents an address of a second element of the first vector; and

processing the second element referenced by the incremented current address.

89. (Original) The method of claim 88, for each successive element of the first vector, further comprising:

incrementing the previous current address with the address stride resulting in a new current address, wherein each successive new current address represents an address of a successive vector element; and

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processing each successive vector element until all of the elements of the first vector have been processed.

90. (Original) The method of claim 89, further comprising identifying a start address of a second vector.

91. (Original) The method of claim 90, wherein identifying the start address of the second vector further comprises incrementing the start address of the first vector with a frame stride resulting in a second start address, wherein an initial value of a current address comprises the second start address.

92. (Original) The method of claim 91, further comprising processing the vector element referenced by the current address of the second vector.

93. (Original) The method of claim 92, for each successive vector element of the second vector, further comprising:

incrementing the previous current address with the address stride resulting in a new current address, wherein each successive new current address represents an address of a successive vector element of the second vector; and

processing each successive vector element until all of the elements of the second vector have been processed.

94. (Original) The method of claim 93, for each vector to be processed, further comprising:

identifying a start address of the vector;

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processing a first element of the vector;
processing remaining successive elements of the vector by
incrementing the current address with an address
stride resulting in successive current addresses;
processing corresponding successive elements
referenced by the successive current addresses; and
after all of the elements of the vector have been
processed, incrementing the start address by the frame stride to
identify a start address of the next vector to be processed.

95. (Original) The method of claim 84, wherein a vector of data elements is loaded into the vector file prior to execution of the second instruction and the configuration.

96. (Original) The method of claim 84, wherein a vector of data elements is loaded into the vector file in parallel with execution of the second instruction and the configuration.

97. (Original) The method of claim 96, wherein the first instruction operates to process the first vector element by element by interlocking between the load port of the vector register file and the vector computation to process each element when it arrives in the vector register file.